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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,652	07/18/2003	Hiroaki Taniuchi	240580US0X	1043

22850 7590 06/08/2005

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EXAMINER
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RAYFORD, SANDRA M

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 06/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/621,652

Applicant(s)

TANIUCHI ET AL.

Examiner

Sandra M. Nolan-Rayford

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 8-14 and 17-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 15 and 16 is/are rejected.
- 7) ☒ Claim(s) 7, 15 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8-25-03+2-19-04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

S. M. Nolan-Rayford 6-4-05

## **DETAILED ACTION**

### ***Claims***

1. Claims 1-24, as shown in the 18 July 2003 letter, are pending.

Claims 1-7, 15-16 are treated here.

Claims 8-14 and 17-25 are withdrawn as non-elected. See the restriction/species election discussion below.

### ***Information Disclosure Statements***

2. The information disclosure statements (IDS's) submitted on 25 August 2003 and 19 February 2004 were considered by the examiner.

### ***Response***

3. The response dated 18 March 2005 ("the last response"), in reply to the restriction requirement dated 22 February 2005 ("the last office action"), has been entered.

### ***Restriction and Species Election Requirements***

4. As described on pages 1-3 of the last response, the examiner has made restriction and election requirements in the last office action.

In reply to those requirements, applicants have elected:

- A. Group I, claims 1-7 and 15-18 to composites,
- B. iron powder as the metallic material species,
- C. silica fume as the filler species, and
- D. ferroboron as the neutron-absorbing species.

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5. Claims 17-18 are deemed non-elected because they do not recite the elected iron powder species.

6. Claims 8-14 and 17-25 are withdrawn.

### ***Summary of Elected Base Claims***

7. The base, or independent, claims now before the examiner are claims 1 and 7.

They can be summarized as follows:

Claim 1 covers a composite comprising:

- Portland cement or a blend containing it,
- 10 to 70 wt% iron powder, and
- 15 to 60wt% calcium hydroxide,

wherein the calcium hydroxide is what remain after the hydration reaction.

Claim 7\* covers concrete made from a composite comprising:

- Portland cement or a blend containing Portland cement and:
- 10 to 70 wt% iron powder, and
- 15 to 60wt% calcium hydroxide,

wherein the calcium hydroxide is what remain after the hydration reaction.

\*See the claim objection below.

Note: "Portland cement" and "portland cement" are deemed to mean the same material.

### ***Title***

8. The title of the invention is too long. A new title is required that is shorter and is clearly indicative of the invention to which the claims are directed.

The following title is suggested: CEMENT COMPOSITE.

### ***Claim Objections***

9. Claim 7 is objected to because of the following informalities: the phrase "Portland cement or blended cement including . . ." renders the claim indefinite.

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Does the concrete of claim 7 include only Portland cement?

Appropriate correction is required.

10. Claims 15 and 16 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Note that claim 12, from which claim 15 depends, has been withdrawn.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

*In the remainder of this office action, claims 15 and 16 are treated as if they depended upon claim 1.*

### ***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated by JP-56005371A.

As best understood by the examiner, claim 7 reads on composites containing Portland cement.

The abstract of JP 56005371A teaches composites containing “portland cement”. See its first paragraph.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 1, 3, 5-7 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKaveney (US 4,197,218) in view of JP 52150434A (abstract).

McKaveney teaches articles (title) made from compositions containing:

- portland cement (col. 2, line 60),
- 5 to 90% (col. 3, lines 42-44) ferroboration (col. 2, line 68), and
- metal powders (col. 3, lines 63-65).

It fails to teach the use of iron powder.

The Japanese abstract teaches the use of 40 to 60 wt% iron powder with Portland cement (first paragraph of English abstract) in non-contractive grouting compositions (title of abstract).

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The Japanese grouting compositions have high strength and are not greatly affected by temperature variations (second paragraph of abstract).

The references are analogous because they both deal with cement-containing compositions.

It would have been obvious to one having ordinary skill in the art at the time of the invention to employ the iron powder of the Japanese abstract in the compositions of McKaveney in order to make compositions that have high strength and that are not affected by temperature variations.

It is deemed desirable to make strong cement compositions that do not deteriorate when subjected to temperature variations in order to improve the useful lives of structures made therewith.

15. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKaveney and the Japanese abstract as applied to claims 1, 3, 5-7 and 15-16 above, and further in view of DE 2961602 U1 (abstract only).

“Silica fume” (in claim 4) is deemed to mean fumed silica.

The McKaveney and Japanese disclosures are discussed above. They fail to teach fumed silica or calcium hydroxide.

The German abstract teaches the use of fumed silica (line 11), Portland cement (line 15), and calcium hydroxide (line 27) in fire retardant materials (title) for joints and steel coatings (use section). The materials are used rapidly.

The references are analogous because they all deal with compositions containing Portland cement.

It would have been obvious to one having ordinary skill in the art at the time of the invention to employ the fumed silica and calcium hydroxide ingredients of the German abstract, in suitable conventional amounts\*, in the compositions suggested by the combination of McKaveney and the Japanese disclosure in order to make them useful rapidly.

\*See the comment re: Hooper below.

It is deemed desirable to make cement compositions useful rapidly in order to shorten set up times and save resources.

16. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over McKaveney, the Japanese abstract and the German abstract, as applied to claims 2 and 4 above, and further in view of Hooper.

McKaveney, the Japanese abstract and the German abstract and their combined teachings are discussed above. They fail to teach the amount of calcium hydroxide recited in claim 2.

Hooper, which was cited by applicants, teaches that Portland cement compositions conventionally contain 20 to 40% calcium hydroxide produced by hydration of the cement. The compositions have high strengths (col. 3, lines 58-61).

The four references are analogous because they all teach Portland cement compositions.

It would have been obvious to one having ordinary skill in the art at the time of the invention to employ compositions containing the amounts of calcium hydroxide taught by Hooper when making materials based upon the combined teachings of



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McKaveney, the Japanese abstract and the German abstract in order to improve the strength of articles made therefrom.

The motivation to employ compositions containing the amounts of calcium hydroxide taught by Hooper when making materials based upon the combined teachings of McKaveney, the Japanese abstract and the German abstract is found at col. 3, lines 58-61 of Hooper, where its compositions are said to have high strength.

It is deemed desirable to make articles using compositions that yield high strength so that the article can have longer useful lives.

***Citation as of Interest***


17. SU 776999B teaches that ferroboration is an ingredient in Portland cement binders.

***Conclusion***

Any inquiry concerning this communication should be addressed to Sandra M. Nolan-Rayford, at telephone number 571/272-1495. She can be reached Monday through Thursday, from 6:30 am to 4:00 pm, ET.

If attempts to reach the examiner are unsuccessful, contact her supervisor, Harold Pyon, at 571/272-1498.

The fax number for patent application documents is 703/872-9306.

  
S. M. Nolan-Rayford  
Primary Examiner  
Technology Center 1700

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